

WHAT IS CLAIMED IS:

1 1. A system for providing network access translation device traversal to
2 facilitate communications, comprising:

3 a network access translation (NAT) device;

4 a first Session Initiation Protocol (SIP) client located on the interior of the
5 NAT device;

6 a second SIP client located on the exterior of the NAT device; and

7 a proxy server configured to maintain registration information relating to the
8 first SIP client and the NAT device;

9 wherein the second SIP client is able to initiate contact with the first SIP client
10 and establish a communication session using the proxy server and the registration information
11 maintained thereon; and

12 wherein the communication session is established by traversing the NAT
13 device.

1 2. The system of claim 1 wherein the registration information is
2 periodically provided to the proxy server based on a condition.

1 3. The system of claim 2 wherein the condition includes startup of the
2 first SIP client.

1 4. The system of claim 1 wherein the registration information includes an
2 Internet Protocol (IP) address abstraction, NAT-translated IP address and port information.

1 5. The system of claim 1 wherein some of the registration information is
2 provided to the proxy server by the first SIP client via the NAT device;

3 wherein some of the registration information is provided to the proxy server
4 by the NAT device;

5 wherein upon the first SIP client forwarding some of the registration
6 information to the proxy server via the NAT device, the NAT device creates a binding for the
7 first SIP client; and

8 wherein the binding and the registration information are used to allow the
9 second SIP client to initiate contact with the first SIP client by traversing the proxy server and
10 the NAT device.

1 6. The system of claim 1 wherein the proxy server is part of a telephone
2 gateway.

1 7. A system for providing network access translation device traversal to
2 facilitate communications, comprising:
3 a network access translation (NAT) device;
4 a first Session Initiation Protocol (SIP) client located on the interior of the
5 NAT device;
6 a second SIP client located on the exterior of the NAT device; and
7 a proxy server configured to maintain registration information relating to the
8 first SIP client and the NAT device, the proxy server further configured to allow the second
9 SIP client to initiate contact with the first SIP client and establish a communication session
10 using the registration information;
11 wherein the communication session is established by traversing the NAT
12 device.

1 8. The system of claim 7 wherein the registration information is
2 periodically provided to the proxy server based on a condition.

1 9. The system of claim 8 wherein the condition includes startup of the
2 first SIP client.

1 10. The system of claim 7 wherein the registration information includes an
2 Internet Protocol (IP) address abstraction, NAT-translated IP address and port information.

1 11. The system of claim 7 wherein the registration information includes
2 information supplied by the first SIP client and the NAT device respectively;
3 wherein upon the first SIP client forwarding its portion of the registration
4 information to the proxy server via the NAT device, the NAT device creates a binding for the
5 first SIP client; and
6 wherein the binding and the registration information are used to allow the
7 second SIP client to initiate contact and establish the communication session with the first
8 SIP client by traversing the proxy server and the NAT device.

1 12. The system of claim 11 wherein when the second SIP client wishes to
2 initiate contact with the first SIP client, the second SIP client forwards a SIP INVITE
3 command to the proxy server;

4 wherein upon receiving the SIP INVITE command, the proxy server uses the
5 registration information to identify the NAT device and forwards the SIP INVITE command
6 to the NAT device;

7 wherein upon the NAT device receiving the SIP INVITE command, the NAT
8 device uses the binding to forward the SIP INVITE command to the first SIP client; and

9 wherein upon the first SIP client accepting the SIP INVITE command, SIP
10 signaling between the first SIP client and the second SIP client can be conducted through the
11 NAT device directly.

1 13. The system of claim 7 wherein the proxy server is part of a telephone
2 gateway.

1 14. A proxy server for providing network access translation device
2 traversal to facilitate communications, comprising:

3 a lookup table configured to store registration information relating to a first
4 Session Initiation Protocol (SIP) client and a network access translation (NAT) device; and
5 control logic configured to use the registration information to allow a second
6 SIP client to initiate contact and establish a communication session with the first SIP client,
7 the second SIP client being located on the exterior of the NAT device and the first SIP client
8 being located on the interior of the NAT device;

9 wherein the second SIP client is able to traverse the NAT device via the proxy
10 server to establish the communication session with the first SIP client.

1 15. The proxy server of claim 14 further comprising:

2 control logic configured to receive a SIP INVITE command from the second
3 SIP client upon the second SIP client wishing to initiate contact with the first SIP client; and

4 control logic configured to use the registration information to identify the
5 NAT device and forward the SIP INVITE command to the NAT device;

6 wherein upon receiving the SIP INVITE command, the NAT device uses a
7 binding associated with the first SIP client to forward the SIP INVITE command to the first
8 SIP client;

9 wherein upon the first SIP client accepting the SIP INVITE command, SIP
10 signaling between the first SIP client and the second SIP client can be conducted through the
11 NAT device.

1 16. The proxy server of claim 14 wherein the registration information is
2 provided to the proxy server upon the first SIP client contacting the proxy server via the NAT
3 device for registration.

1 17. The proxy server of claim 16 wherein the first SIP client contacts the
2 proxy server to provide registration information upon startup.

1 18. The proxy server of claim 14 wherein the registration information
2 includes an Internet Protocol (IP) address abstraction for the first SIP client, a NAT-translated
3 IP address and port information.

1 19. A telephone gateway incorporating the proxy server as recited in claim
2 14.

1 20. A method for providing network access translation device traversal to
2 facilitate communications, comprising:

3 maintaining registration information relating to a first Session Initiation
4 Protocol (SIP) client and a network access translation (NAT) device on a proxy server; and
5 using the registration information to allow a second SIP client to initiate
6 contact and establish a communication session with the first SIP client, the first SIP client
7 being located on the interior of the NAT device, the second SIP client being located on the
8 exterior of the NAT device;

9 wherein the second SIP client uses the proxy server to initiate communication
10 with the first SIP client;

11 wherein the first SIP client contacts the second SIP client through the NAT
12 device using information sent in a SIP INVITE command from the proxy server, causing a
13 new binding to be created in the NAT device;

14 wherein the second SIP client is able to traverse the NAT device using the
15 established session with the first SIP client.

1 21. The method of claim 20 further comprising:

2 upon the second SIP client wishing to contact and establish the
3 communication session with the first SIP client, directing the second SIP client to forward the
4 SIP INVITE command to the proxy server;
5 directing the proxy server to use the registration information to identify the
6 NAT device and forward the SIP INVITE command to the NAT device;
7 upon receipt of the SIP INVITE command, directing the NAT device to use a
8 binding associated with the first SIP client to forward the SIP INVITE command to the first
9 SIP client; and
10 upon the first SIP client accepting the SIP INVITE command, conducting SIP
11 signaling between the first SIP client and the second SIP client, using information contained
12 in the SIP INVITE command, through the NAT device, and causing new binding information
13 to be created.

1 22. The method of claim 20 further comprising:
2 providing the registration information to the proxy server upon the first SIP
3 client contacting the proxy server via the NAT device for registration.

1 23. The method of claim 22 wherein the first SIP client contacts the proxy
2 server to provide registration information upon startup.

1 24. The method of claim 20 wherein the registration information includes
2 an Internet Protocol (IP) address abstraction for the first SIP client, a NAT-translated IP
3 address and port information.

1 25. A telephone gateway utilizing the method as recited in claim 20.

1 26. A method for providing network access translation device traversal to
2 facilitate communications, comprising:

3 directing a proxy server to receive an Session Initiation Protocol (SIP)
4 INVITE command issued from an initiating SIP client upon the initiating SIP client wishing
5 the initiate contact and establish a communication session with a recipient SIP client, the
6 initiating SIP client being located on the exterior of a network access translation (NAT)
7 device and the recipient SIP client being located on the interior of the NAT device;

8 directing the proxy server to use registration information relating to the
9 recipient SIP client and the NAT device to identify the NAT device and forward the SIP
10 INVITE command to the NAT device;

11 upon receipt of the SIP INVITE command, directing the NAT device to use a
12 binding associated with the recipient SIP client to forward the SIP INVITE command to the
13 recipient SIP client; and

14 upon the recipient SIP client accepting the SIP INVITE command, conducting
15 SIP signaling between the recipient SIP client and the initiating SIP client, using information
16 contained in the SIP INVITE command, through the NAT device, and causing new binding
17 information to be created.

1 27. The method of claim 26 further comprising:
2 providing the registration information to the proxy server upon the recipient
3 SIP client contacting the proxy server via the NAT device for registration.

1 28. The method of claim 27 wherein the recipient SIP client contacts the
2 proxy server to provide registration information upon startup.

1 29. The method of claim 26 wherein the registration information includes
2 an Internet Protocol (IP) address abstraction for the first SIP client, a NAT-translated IP
3 address and port information.

1 30. A telephone gateway utilizing the method as recited in claim 26.